January 17, 2019 CDS Connect Work Group Call

CDS Connect

CMS Alliance to Modernize Healthcare

MITRE

AGENDA

3:00 – 3:05	**Roll Call, Ginny Meadows (MITRE)**
3:05 – 3:10	**Review of the Agenda, Maria Michaels (CDC)**
3:10– 3:40	**Trust Framework Work Group Recommendations for Promoting Trust in a CDS Ecosystem, Sharon Pacchiana and Sharon Sebastian (MITRE)** • Share analysis on the recommendations and next steps • Question and answer period
3:40– 3:55	**CDS Connect Authoring Tool FHIR STU3 Support, Dylan Mahalingam (MITRE)** • Share information and provide a demonstration on support for FHIR STU3 in the Authoring Tool
3:55 – 4:10	**CDS Connect Repository Account Enhancement Options, Dave Winters (MITRE)** • Discuss options and priority for enhancements to CDS Connect Repository accounts
4:10 – 4:15	**Update on OY2 Pilot Outreach and Clinical Domain, Ginny Meadows (MITRE)** • Share current status of pilot outreach and related CDS artifact development options
4:15 – 4:25	**Update on the CDS Connect Sustainability Path Project, Lacy Fabian (MITRE)** • Share an update on current progress
4:25 – 4:30	**Open Discussion and Close Out, Maria Michaels (CDC)** • Open discussion and announcements • Concluding comments, review next steps and adjourn

- *CDS = Clinical Decision Support*
- *FHIR = Fast Healthcare Interoperability Resources*
- *STU = Standard for Trial Use*
- *OY2 = Option Year 2*

Trust Framework Work Group Recommendations: Promoting Trust in a CDS Ecosystem

Outline of This Discussion

- Trust Framework Working Group (TFWG) background information and approach to study and advance trust
- MITRE's analysis approach of the TFWG paper
- Analysis findings and work to enhance trust

TFWG Background Information and Approach

- **Patient-Centered Clinical Decision Support Learning Network (PCCDS-LN) chartered the TFWG**
  - Goal: Develop recommendations for trust among actors in a CDS ecosystem in practice and within emerging systems such as CDS Connect
    - Actors = those involved in creating, managing, encoding, distributing, implementing

- **TFWG Approach:**
  - #1 Develop a shared understanding in trust and CDS (educational)
  - #2 Define actors within a trust ecosystem (12):
    - Clinicians, Health IT Vendors; Knowledge Authors; Knowledge Curators; Knowledge Distributors; Knowledge Engineers; Organizational Governance Bodies; Patients; Payers; Policymakers: Population Health End Users; Quality Improvement Analysts

TFWG Development of the Trust Recommendations

- #3 Describe *trust relationships* between actors (through a 12 x 12 matrix) *(leads into the trust attributes)*

- #4 Determine key *trust attributes* (9 trust elements)
  - Competency; Compliance; Consistency; Discoverability and Accessibility; Evidence-based; Feedback and Updating; Organizational capacity; Patient centeredness; Transparency

- #5 Identify *recommendations to address trust attributes (33)*

Trust Attribute	Description	Recommendation
Competency	An actor is deemed to be competent in the role played in the CDS ecosystem. For example, an author of a knowledge artifact should be judged competent, qualified, and an appropriate authority to develop the artifact based on factors such as past performance, professional qualifications, or certifications.	1.1 Authors have descriptions with background information including affiliations, years participating, and frequency of participation. 1.2 Authors promote respect and dignity when providing feedback. 1.3 Authors are credentialed by an agreed-upon entity through education or training, experience, and dependability. 1.4 Knowledge professionals are certified that they are competent in the knowledge management lifecycle, competently interpret, encode, and execute knowledge, and are competent of issues in conflict of interest. 1.5 Competency should apply to both individuals and organizations.
Compliance	A knowledge artifact should conform to defined standards and criteria including copyright and intellectual property.	1. Knowledge artifacts provide human-readable and machine-readable forms (whenever applicable) as well as supporting references. 2. Knowledge artifacts are implemented in compliance with best practices for safe and effective implementation. 3. Knowledge artifacts are encoded using current standards for controlled medical terminologies, value sets, clinical data models, and knowledge representation formalisms.

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TFWG Development of the Trust Recommendations

- #6 Map recommendations to CDS functional use cases (thus for each of the use cases which attributes and recommendations map?)
  - Where no recommendations mapped, indicated by a letter (A*) and in the text put options for future in those areas

Functional Use Case	Description
Author and Upload	Create a CDS knowledge artifact and make it available to others via a repository.
Inspect and Compare	Review CDS knowledge artifacts in a repository and make assessments (e.g., fitness for use) based on available metadata.
Download and Use	Download and implement a knowledge artifact into a local environment and use that artifact.
Provide Feedback	Offer means for actors to share input about the effectiveness or experiences with a knowledge artifact.

Trust Attribute	Authoring and Uploading CDS Content to CDS Connect	Inspecting and Comparing CDS Content on CDS Connect	Downloading and Using CDS Content on CDS Connect	Providing Feedback on CDS Use in Practice
Competency	▪ Authors have descriptions with background information including affiliations, years participating, and frequency of participation. (1.1) ▪ Authors are credentialed by an agreed-upon entity through education or training, experience, and dependability. (1.3) ▪ Competency should apply to both individuals and organizations. (1.5)	A *	Knowledge professionals are certified that they are competent in the knowledge management lifecycle, competently interpret, encode, and execute knowledge, and are competent of issues in conflict of interest. (1.4)	▪ Authors promote respect and dignity when providing feedback. (1.2) ▪ Competency should apply to both individuals and organizations. (1.5)
Compliance	▪ Knowledge artifacts provide human-readable and machine-readable forms (whenever applicable) as well as supporting references. (2.1) ▪ Knowledge artifacts are encoded using current standards for controlled medical terminologies, value sets, clinical data models, and knowledge representation formalisms. (2.3)		Knowledge artifacts are implemented in compliance with best practices for safe and effective implementation. (2.2)	B *
Consistency	Authors take on responsibility of ensuring accurate knowledge translation and specification of a knowledge artifact. (3.1)	C *	D *	E *
Discoverability and Accessibility	▪ Knowledge is made accessible through search technology in conjunction with effective and helpful key terms. (4.1) ▪ References to supporting evidence are clearly labeled and linked (preferably deep linked) to relevant supporting information. (4.3) ▪ Data that inform an artifact can be found and accessed. (4.4)	Knowledge can be reliably searched for and found over time, so that users can find the same knowledge across successive versions. (4.2)		

TFWG Development of the Trust Recommendations

– Also used the Leaning Network's Analytic Framework for Action as a model and associated trust attributes to the 4 phases

Analytic Framework for Action	Related Trust Attributes
Evidence	Evidence-based, Patient-centeredness
Authoring	Competency, Consistency, Discovery and accessibility
Implementing	Organizational capacity, Compliance, Transparency
Measuring	Feedback and updating

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MITRE's Analysis Approach

- MITRE combined the:
  - Two analytic frameworks

Analytic Framework for Action	Related Trust Attributes
Evidence	Evidence-based, Patient-centeredness
Authoring	Competency, Consistency, Discovery and accessibility
Implementing	Organizational capacity, Compliance, Transparency
Measuring	Feedback and updating

  - Nine trust attributes
  - Thirty-three recommendations

- Identified key messages and specificities for CDS Connect

Contextual Summation of Trust Framework Recommendations

– Spreadsheet contains a combination of trust attributes and AFA concepts and recommendations

#	Trust Attribute	Description	Recommendations	Interpretation for CDS Connect	Actions
Evidence:	Trust in these recommendations has to do with how solidly each recommendation is evidence-based first and foremost. -Formal evidence-rating system used to assess and weigh the quality of the evidence being used to create a clinical guideline, or ultimately a knowledge artifact for CDS.				
5	Evidence-based	The evidence instantiated within an artifact must apply to the clinical condition it is meant to support. Limitations are stated clearly, and the evidence supporting the clinical guideline/ predictive model, etc. in an artifact is substantiated and has clear clinical appropriateness.	■ Metadata indicate the date that evidence was originally published, and the date that evidence was last reviewed. **(5.1)**	In repository information	none
			■ Metadata state any known limitations, restrictions, or exclusions to any given evidence. (5.2)	Not mandatory now; we would need to add these fields and require them to be completed for authoring and posting on repository	Add required fields for limitations, restrictions, or exclusions
			■ Artifacts contain references to the evidence base on which they are based, including both narrative guidelines and the data supporting those guidelines. (5.3)	In repository information	none
			■ Artifacts include metadata for all supporting citations. (5.4)	In repository information	none
			■ Artifacts include evidence about its method (e.g., order set v. alert), usage history, and available outcomes. (5.5)	Order set vs alert: yes Usage history: no Outcomes: no Not mandatory now; we would need to add these fields and require them to be completed for authoring and posting on repository	Add required fields for usage history, and available outcomes
8	Patient - centeredness	When possible, a knowledge artifact should leverage patient- centered outcome research findings and/or patient-specific information (the patient's clinical data, patient-generated health data, patient-reported outcomes) to support decisions by individual patients, their approved caregivers, and/or their care teams.	■Requirements for patient-level or patient-generated data input are clearly indicated. **(8.1)**	This would require review of each artifact to make sure it was patient-specific	Review of each artifact to make sure it was patient-specific
			■Evidence that accounts for patient-level or patient- generated data is clearly indicated. **(8.2)**	This would require review of each artifact to make sure it contained patient generated data if applicable	Review of each artifact to make sure it contained patient generated data if applicable
			■ Consent for use of patient-level or patient-generated data is clearly indicated. (8.3)	?	

TFWG White Paper Analysis and Findings (1 of 6)

- **Evaluated each recommendation against existing:**
  - Metadata definitions and intent – *tooltips, API notes, artifact contribution template*
  - Technical capabilities – *new fields, capabilities, automation, etc.*
  - Process and policy – *contributing, publishing, commenting, etc.*
- **Assigned a status for each recommendation**
  - Met
  - Partially met
  - In development
  - Parking lot
  - Out of scope

******Recommendations can have >1 status***

TFWG White Paper Analysis and Findings (2 of 6)

- **Met (9 out of 33 recommendations)**
  - Artifacts contain a auditable records of updates and changes over time. (6.4)
  - Artifacts include metadata for all supporting citations. (5.4)
  - Knowledge artifacts provide human-readable and machine-readable forms (whenever applicable) as well as supporting references. (2.1)

- **Partially Met (5 out of 33 recommendations)**
  - In Development
    - Metadata state any known **limitations, restrictions,** or exclusions to any given evidence. (5.2)
    - Artifacts include evidence about its method (e.g., order set v. alert), **usage history, and available outcomes.** (5.5)

TFWG White Paper Analysis and Findings (3 of 6)

- **Partially Met (2 out of 33 recommendations)**
  - Parking Lot (and In Development)
    - Knowledge can be reliably **searched** for and found over time, so that users can find the same knowledge across successive **versions**. (4.2)
      - Users (i.e., contributors) ability to see versions – Met
      - Users (i.e., viewers) ability to see versions – Parking lot

TFWG White Paper Analysis and Findings (4 of 6)

- **In Development (16 out of 33 recommendations)**
  - Knowledge is made accessible through **search technology** in conjunction with effective and helpful key terms. (4.1)
  - Clearly indicated policies address **conflict of interest**. (9.2)
    - Involves new metadata field/technical capability and new policy/process
  - Systems provide **feedback mechanisms** including means for users to ask questions about an artifact's context of use. (6.2)
    - Involves new technical capabilities, policy/process and eventually metadata
      - Also involves: investigation of privacy practices, the need to implement accounts and stage work

TFWG White Paper Analysis and Findings (5 of 6)

- **Parking Lot (5-7 out of 33 recommendations)**
  - Authors provide bidirectional feedback to one another to **rate** (and improve) one another's work.
  - Artifacts are **updated based in part on feedback** from operational performance over time. (6.5)
  - **Consent** for use of patient-level or patient-generated data is clearly indicated. (8.3)

TFWG White Paper Analysis and Findings (6 of 6)

- **Out of scope for this year (3 out of 33 recommendations)**
  - Authors are **credentialed** by an agreed-upon entity through education or training, experience, and dependability. (1.3)
  - Knowledge professionals are **certified** that they are competent in the knowledge management lifecycle, competently interpret, encode, and execute knowledge, and are competent of issues in conflict of interest. (1.4)
  - Knowledge artifacts are **implemented** in compliance with best practices for safe and effective implementation. (2.2)

Prioritization of Enhancements to the Repository r/t TFWG Recommendations

- **Enable robust search capabilities**
- **Update metadata definitions, create tooltips and API notes**
- **Implement new process and metadata field to convey Author Disclosures (a.k.a. Conflict of Interest)**
- **Expand Repository user accounts to enable aspects of notifications and feedback**

Questions? Comments?

Authoring Tool FHIR STU3 Support

CDS Connect: Proposed Plan for Expanded User Accounts

Accounts: Current Status

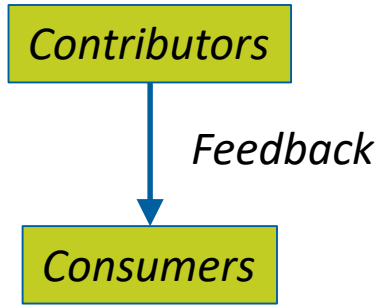
- **Main components of each user account:**
  - Username
  - Email address
  - Role (Author, Editor, *etc.*)
- **Other miscellaneous components (not actively used):**
  - Language settings
  - Time zone
  - Custom URL alias to user homepage

*Account holder categories (**current**)*
- *Repository contributors*
- *Authoring Tool users*

Current account model is very simplistic, but could be expanded to bring new capabilities.

Potential New Capabilities with Expanded Accounts

- **Notifications / Alerts / Updates**
  - System (*e.g.*, outage)
  - Artifacts
    - Subscribe to specific artifacts
    - Subscribe to specific Topic areas
    - Subscribe to specific Organizations
  - Blog updates
- **Comments**
  - Artifacts
  - Blogs
- **Topic Interests**
  - For personalized browsing with new Artifact Discovery design



*Account holder categories (**future**)*
- *Repository contributors*
- *Authoring Tool users*
- ***Repository consumers***

Personalized browsing settings

Expanded User Accounts: Proposed Plan

- **Phase 1:**
  - Enable automated System notifications
    - Currently manual process
  - Enable subscriptions to specific artifacts
    - Custom form for automated creation of notification messages
- **Phase 2:**
  - Enable subscription to specific Topic areas
  - Enable personalized browsing of Topic Interests
- **Phase 3:**
  - Automated artifact notifications
  - Enable subscription to Blog updates
  - Optional: Enable comments on artifacts and/or blogs

Roll-out:

Build consumer population by advertising new features:

- *Reach out to individuals who have requested updates on CDS Connect*
- *Update "Contact Us" form*

Test Incrementally

- *Initially deploy on 1-2 artifacts*
- *Then enable on entire repository*

Questions for Work Group

- **Do the priorities of the spiraled approach make sense?**
- **Is the proposed roll-out reasonable?**
- **Are there other aspects not listed here but that should be considered?**

Update: OY2 Pilot Outreach and CDS Clinical Domain

Pilot Organization Criteria and Outreach

- **Organization Criteria:**
  - Preventive Care is a priority
  - Considering several organization types:
    - Traditional primary care ambulatory practice, FQHC
    - Innovative primary care solution, e.g. telemedicine or alternate model of care
    - Patient/employee-facing with focus on wellness and preventive care
  - Interest in patient-facing CDS
  - IT integration capability
  - Organizational priority and commitment to allocate resources
  - Able to work within the pilot timeframe

Pilot Site Outreach

- **Completed detailed discussions with potential pilot organizations**
- **Organizations have diverse settings and focus including:**
  - Traditional clinician-facing “brick and mortar” settings
  - Telehealth companies
  - Patient/consumer-focused organizations working with employers and/or health plans
- **Met with our sponsor, AHRQ, in early January to provide initial impressions and information**
- **Goal: Determine most optimal pilot site within the next 2 weeks**

Next Steps

- **Meeting with AHRQ to share final pilot site details, discuss optimal pilot organization and related CDS artifact development**
- **Finalize Pilot site selection**
- **Begin formulating CDS artifact based on pilot CDS focus**

Update: CDS Connect Sustainability Project

Announcements, Open Discussion, and Close-out

CDS Connect at HIMSS 2019

- **Thursday, February 14 (Ed Lomotan, AHRQ & Maria Michaels, CDC)**
  - **Time:** 8:30am - 9:30am
  - **Session ID**: 203 Maximizing Synergy Between Federal Health Information and Technology Programs
  - **Room:** W314B
- **Interoperability Showcase: Tuesday, 2/12 – Thursday 2/14**
  - **Use Case:** Bundled Payment and Chronic Pain Management
  - Presentations at 45 minutes past the hour (each 25 minutes):
    - Tuesday, February 12 between 10a-6p
    - Wednesday, February 13 between 9:30a-6p
    - Thursday, February 14 between 9:30a-4p

Back up slides

Potential CDS Options

- **Favored CDS options:**
  - Create patient/consumer-facing CDS that could be used with either a patient portal, a personal health record, an employer or health plan wellness web site, or an employee health web site
  - Convert 1 or more of the newest USPSTF A, B, or D recommendations to a CDS intervention
- **Other CDS options:**
  - Convert 1 or more eCQM specifications to a CDS intervention
  - Create a clinician-facing SMART on FHIR app similar to the ePSS but integrated with an EHR, updating the user interface and removing recently performed screenings from the results
  - CDS that addresses a business need (i.e., over-ordering of services)
- **Pilot site CDS recommendations**

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